

REMARKS

Applicant appreciates the continued thorough examination of the present application that is evidenced in the Final Office Action of October 29, 2007 (the "Final Action").

Applicant has cancelled Claims 1-6, 8, 9, 12-14, 16, 18-21, 23 and 25-27 without prejudice. New Claims 76-77 are presented. Accordingly, Claims 46-51, 53, 76 and 77 remain for consideration.

Claim 46 recites (emphasis added):

46. A method of shaping a surface of a silicon carbide substrate, comprising:

patterning a mask layer on the silicon carbide substrate using a laser to remove material from the mask layer, wherein patterning the mask layer comprises applying laser light to the mask layer at an energy sufficient to remove material from the mask layer while scanning a pattern into the mask layer to form three dimensional geometric patterns in the mask layer; and

etching the silicon carbide substrate using the patterned mask layer to define the three dimensional geometric patterns, wherein the three dimensional geometric patterns comprise a plurality of different geometric patterns.

Applicant respectfully submits that at least the underlined recitations are not taught or suggested by the cited references. In discussing Claim 46, the Final Action states that U.S. Patent No. 5,779,924 to Krames "discloses patterning a mask layer on a substrate 3 using a laser to remove material from the mask layer 5." Final Action, page 7. However, the Final Action ignored the recitation of previous Claim 46 "wherein patterning the mask layer comprises applying laser light to the mask layer at an energy sufficient to remove material from the mask." Applicant submits that Krames does not disclose this recitation. Rather, Krames describes forming a mask and exposing the mask using laser beam interference. Krames, col. 7, lines 11-16. The exposed mask is then developed. Thus, Krames does not teach applying laser light to the mask layer at an energy sufficient to remove material from the mask. Furthermore, the techniques of Krames cannot be used to create different three-dimensional geometric patterns in a substrate using a single mask.

Although U.S. Patent No. 4,915,981 to Traskos et al describes methods of drilling through fluoropolymer composite substrates, the method described by Traskos does not scan a pattern into the mask layer using laser light at an energy sufficient to remove material from the mask layer to form three dimensional geometric patterns in the mask layer as recited in

Claim 46. Thus, the techniques of Traskos et al. cannot be used to create three dimensional patterns as recited in Claim 46.

Furthermore, while the Boehlen article describes laser scanning techniques, such techniques are not used to pattern a mask on a substrate that is then used for etching the substrate to define three dimensional patterns therein.

New Claim 76 recites that the plurality of different geometric patterns comprise surfaces that are angled with respect to the surface of the silicon carbide substrate. For example, using the scanning technique recited in Claim 76, geometric patterns such as pyramids and elliptical lenses can be created in the substrate, as shown in Figures 2, 3, 7 and 8.

New Claim 77 recites as follows (emphasis added):

77. A method of shaping a surface of a silicon carbide substrate, comprising:
forming a mask layer on the surface of the silicon carbide substrate;
patterning the mask layer using a laser to remove material from the mask layer, wherein patterning the mask layer comprises scanning laser light onto the mask layer at an energy sufficient to remove material from the mask layer to form three-dimensional geometric features in the mask layer having sidewalls that are angled relative to the surface of the substrate; and
anisotropically etching the silicon carbide substrate using the patterned mask layer to define the three dimensional geometric patterns having sidewalls that are angled relative to the surface of the substrate.

Applicant respectfully submits that at least the underlined recitations of Claim 77 are not taught or suggested by the cited references.

CONCLUSION

In light of the above remarks, Applicant respectfully submits that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,



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